**Session 10- Pythagorean Theorem**

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| Time | Agenda | Vocab | Resources |
| 4:00 | Welcome    Go over homework & questions |  |  |
| 4:15 | * **Pythagorean Theorem - introduction** * Using graph paper, have the participants cut out a right triangle that has legs with lengths of 3 and 4. Now cut out a square that is 3 x 3 and a square that is 4 x 4. Match the squares to the corresponding sides of the triangle. Ask – what size square do we need to match the other side (hypotenuse)? Cut out the matching square for the hypotenuse. * Count the number of small squares in each of the squares. (3 x 3) 9, (4 x 4) 16, (5 x 5) 25 * The lengths of the legs squared equal the length of the hypotenuse squared. 32 + 42 = 52 * Hand out Pythagorean Puzzle #1. Allow the participants time to complete * Two other puzzles are provided for fast finishers. * Another “proof” is found in Beckmann Activity manual. Class Activity 14BB page 352-353 |  | Graph paper  Puzzle pages |
| 5:00 | * **How to use Pythagorean Theorem** * The following problems can be presented in several ways – teacher demonstration –participants work individually and try and solve with class demonstration by one of the participants – participants work in pairs with one participant giving a whole class demonstration – pair/share - . . .   Guided Practice:   * A triangle has legs with lengths of 4 and 6. What is the length of the hypotenuse? * A triangle has legs with lengths of 3 and 8. What is the length of the hypotenuse? * A triangle has a leg with the length of 5 and the hypotenuse with the length of 13. What is the length of the hypotenuse? * A baseball diamond is really a square with each side 90 feet in length. So the length from home plate to 1st base is 90 feet. The length from 1st base to 2nd base is 90 feet, etc. If the catcher standing on home plate throws the ball to the second baseman, who is standing on second base, how far is the throw? * You are locked out of your house. There is an open window on the second floor. The window is 25 feet off the ground. You borrow a ladder to climb to the window. But because of some bushes the foot of the ladder must be 10 feet away from the house. What length of ladder will you need to reach the window?   **Independent Practice (Worksheet)**   * If you have extra time you can show how to use the Pythagorean Theorem to find the distance between two points in the coordinate plane.   [**http://www.onlinemathlearning.com/coordinate-geometry.html**](http://www.onlinemathlearning.com/coordinate-geometry.html) |  | Practice sheet |
| 6:00 | Break |  |  |
| 6:15 | * **Solve Pythagorean Theorem using Algebra** * Using Figure 20.22 in VDW pg 418 (VDW page 429 6thth edition figure 21.23)   Have the participants create a proof of the Pythagorean relationship.  OR   * Using the following website demonstrate the algebraic proof of the Pythagorean Theorem. * <http://www.mathsisfun.com/geometry/pythagorean-theorem-proof.html> |  |  |
| 6:45 | **Review for final test** |  |  |
|  | **Homework** – Review for final test. |  |  |